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TITLE

FOREST INSECT SURVEYS  
FREMONT NATIONAL FOREST, OREGON  
AND ADJACENT PRIVATE LANDS

Season of 1944, 1945 and 1946

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DEPARTMENT OF AGRICULTURE  
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## INTRODUCTION

During the war years of 1944 and 1945, the annual survey of pine beetle damage in the ponderosa pine region became too big an undertaking to be handled by the small regular staff of the Berkeley-Portland Forest Insect Laboratories unaided by temporary employees and the work which was done was limited to those cases where some contributed help could be provided by private timber companies or federal land managing agencies.

Fortunately, in the Klamath Basin survey, help to maintain long time plot records was provided by the Weyerhaeuser Timber Company, Klamath Falls Branch, the Collins Pine Company, the Forest Service and Indian Service. As a consequence most of the permanent sample plots in this sub-region were cruised annually and the continuity of the record maintained.

In 1944, plots in the Silver Lake and Green Areas were cruised by Orr and Borsting of the Weyerhaeuser Co. and the writer. While plots in the Chewaucan, Warner and Dog Lake Areas were covered by Hall and Startt of the Bureau assisted by Bailey of the Collins Pine Co.

In 1945, Keen and Startt of the Bureau cruised all of the plots in these five areas, assisted by Borsting of the Weyerhaeuser Company on the Silver Lake Area and Ranger Orr on the Chewaucan Area.

In 1946, for the first time since the war began, a special crew of temporary field aides was supplied by the Forest Service to cruise all of the plots in these areas of the Fremont. As this work was done in August, instead of in October, as had been the case in recent years, somewhat less than 50 percent of the 1946 loss was found. The complete 1946 loss record will not be available until the survey of 1947 is done.

## Timber Stand Conditions

In the twenty-six years since the annual pine beetle surveys were first started on the Fremont National Forest and adjacent private lands there has been a marked change in timber stand conditions. In the Ely and Silver Lake Areas, ponderosa pine along the timber fringe lost 50 percent or more of its volume due to pine beetle damage. On the better sites, from 15 to 25 percent of the volume was lost to pine beetles. In the last 10 years and particularly during the war, cutting has made rapid inroads into the virgin stands of the Ely Area and to a lesser extent in the Chewaucan and Dog Lake Areas tributary to Lakeview. In the Silver Lake area, most of the extremely high hazard timber of the Embury



Unit has been cut. Cutting and depletion from past beetle outbreaks has greatly reduced the total volume of mature and overmature pine in the area and materially lessened the volume of pine beetle losses. The original stand on 1,100,000 acres was estimated at approximately 13 billion board feet. Since then approximately 450,000 acres have been cut over and the remaining volume has been reduced to approximately 5½ billion board feet.

At the present time remaining virgin stands showing highest hazard to beetle attack are those in the Silver Lake area, particularly on the south and east slopes of Antelope Mountain and the lower slopes of the Silver Creek Unit; those on the Sycan Marsh Area from Currier Camp northward and in the Chewaucan Area along the timber margins. The Warner Mountains still show the lowest hazard and the Dog Lake Area second-lowest. Most of the Bonanza and Rly Areas have now been cut.

#### Results of the Surveys

The sample plots in remaining virgin stands showed that the lowest level of losses, since records were started in 1921, was reached in 1942, 1943 and 1944, as shown on Chart 1. On some areas 1942 was the low point, while on others 1943 or 1944 was equally low or lower. The differences might easily be due to sampling errors. Probably due to windfalls which occurred in 1942, the Chewaucan Area showed a sharp rise in loss for 1943 and 1944, but this dropped again to a low level in 1945. Starting in 1945 losses took a sharp upward trend on all areas, except the chewaucan Area.

The 1946 survey was made in August, when less than 50 percent of the 1946 loss had developed. By applying an estimating factor for time-of-year of cruise, the total 1946 loss was estimated as shown in Table 2. On this basis the Silver Lake Area showed a 38 percent increase in 1946 over 1945; the Sycan Marsh Area showed a 10 percent increase; the Chewaucan Area remained constant and the Dog Lake Area and Warner Mountain Area showed reductions of 68 percent and 100 percent respectively. On the Silver Lake Area the 1946 loss on sample plots was estimated at 123 board feet per acre, which is recognized as a moderate epidemic level of about twice the growth rate. Losses on the Sycan Marsh Area approximately balance growth, while gross losses on the Chewaucan, Dog Lake and Warner Mt. Areas are decidedly less than current growth.

Recent tree ring measurements have shown that the subnormal growth period, which began as a result of moisture deficiency in 1917, came to an end in 1942. Since then growth has been considerably above the long time average. In spite of this improvement in growth conditions, the loss cycle turned upward in 1945 and losses have continued to be heavy in high hazard stands.



### Conclusions and Recommendations

Bark beetle damage in ponderosa pine, which in 1942 reached the lowest level since records were started in 1921, continued low in 1943 and 1944 but increased markedly in 1945 and continued the upward trend in 1946. A new high loss of 123 board feet per acre on sample plots in the Silver Lake Area was indicated. Even so direct control operations are not recommended because of the temporary benefits derived from such work and the likelihood that while a high level of loss may be sustained for several years, heavy epidemic losses are not now in prospect.

The high hazard stands of the Silver Lake and Sycan Marsh Areas should be covered with sanitation-salvage cutting just as soon as such operations are economically feasible. Because of the large amount of beetle susceptible timber in these areas, the only feasible method of holding down losses is through removal of this high risk material through a sanitation-salvage operation.

Pine beetle damage in the Chequamegon, Dog Lake and Warner Mountain Areas continues at a low level and there is no need to speed up cutting operations in these areas because of pine beetle hazards.



TABLE 1. PINE TIMBER KILLED BY BARK BEETLES ON VIRGIN SAMPLE PLOTS  
FRONT NATIONAL FOREST AND ADJACENT PRIVATE LANDS

Area and Unit	Plot	Check Plots Timbered Acreage	Volume of Pine 1941 M.B.M.	Year	No. of Trees	Volume B.M.	Trees Per Section	B.M. Per Acre	Percent of Stand
SILVER LAKE Embodv	Antelope Spring T253, R12E, Sec. 2 W/2	320	4,100	1943	11	17,050	22	53	.41
				1944	14	16,200	28	51	.39
				1945	33	46,050	65	150	1.17
	Rock Butte T253, R12E, Sec. 18 S/2	320	5,620	1943	19	25,050	38	78	.45
				1944	15	17,480	30	55	.31
				1945	42	32,670	84	102	.58
Silver Creek	Kodman Pl. T295, R12E, Sec. 25 S/2	320	4,850	1943	15	13,360	30	42	.28
				1944	21	19,160	42	60	.40
				1945	23	20,870	45	65	.43
	Thomson Res. T308, R13E, Sec. 13 W/2	270	2,100	1943	33	19,360	71	61	.92
				1944	26	17,900	62	56	.85
				1945	13	7,640	31	24	.35
SYCAM WASH Hager	Sherlock T308, R15E, Sec. 21 W/2	320	4,720	1943	9	20,560	18	64	.44
				1944	4	6,480	8	20	.14
				1945	4	9,400	8	29	.20
	McCall T308, R14E, Sec. 12 W/2	320		1944	13	13,490	26	42	
				1945	17	16,340	34	51	
Currier	Currier Camp T325, R15E, Sec. 22 W/2	320	5,850	1943	9	6,940	18	22	.12
				1944	14	15,510	28	46	.26
				1945	16	22,520	32	70	.38
Merritt Creek	Snake Butte	620	11,619	1943	23	17,240	23	28	.15
				1944	27	20,510	27	33	.17
				1945	34	35,370	34	57	.30
ELY	Hitten Spr.	320		1943	17	22,260	34	71	
				1944	20	20,970	40	65	
				1945	10	9,100	20	28	
BONANZA Goodlows Goodlows		600	7,973	1943	57	39,680	61	66	.50
				1944	44	47,910	47	80	.60
				1945	60	39,460	64	66	.50



TABLE 1. (cont.) PINE TIMBER KILLED BY BARK BEETLES ON WINDYIN SAMPLE PLOTS  
FRANKLIN NATIONAL FOREST AND ADJACENT PRIVATE LANDS

Area and Unit	Plot	Check Plots Timbered Acreage	Volume of Pine 1941 B.B.M.	Year	No. of Trees	Volume B.B.M.	Trees Per Section	B.B.M. Per Acre	Percent of Stand
CHETANCAN Thomas Creek	Thomas Creek T37S, R19E, Sec. 30 W/2	320	4,750	1943	16	27,130	32	85	.57
				1944	13	20,590	26	64	.43
				1945	4	3,470	8	11	.07
Chewancon	Taylor T35S, R18E, Sec. 19 E/2	320	3,450	1943	19	15,320	38	48	.44
				1944	22	22,180	44	69	.64
				1945	23	14,000	46	44	.41
Coleman	South Flat T36S, R18E, Sec. 32 S/2	320	4,000	1943	21	28,070	42	88	.70
				1944	24	41,250	48	129	1.03
				1945	15	13,520	30	42	.34
DOG LAKE	Dog Lake T40S, R17E, Sec. 19 W/2	320	3,400	1943	2	3,440	4	11	.10
				1944	4	5,470	8	17	.16
				1945	11	16,790	22	52	.49
WARNER MT. Drake Pt.	Honey Creek T37S, R21E, Sec. 1 W/2	200	3,600	1943	2	3,790	3	19	.10
				1944	2	750	2	4	.02
				1945	1	3,970	2	20	.11
Crane Mt.	Crane Mt. T40S, R21E, Sec. 11 S/2	320	4,100	1943	5	12,010	10	38	.29
				1944	5	9,460	10	30	.23
				1945	4	9,140	8	26	.22



Table 2

ESTIMATED TREND IN LOSS BETWEEN 1945 & 1946

Area	Acres Cruised	Volume of Pine Killed on Plots		Probable Trend 1946/1945
		Average Bd Ft Acre 1945	Estimated Av. Bd Ft Acre 1946	
Silver Lake	1230	59	123	138%
Sycan Marsh	960	50	55	110%
Chewaucan	960	32	32	100%
Dog Lake	320	52	22	42%
Warner Mt.	320	29	0	0

# TREND OF PINE BEETLE LOSS ON CHECK PLOTS

Fremont National Forest, Oregon

1937-1946

